

Contributions to the history of university museums and collections in Europe

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Resumo

Se a história dos museus, desde os *wunderkammer* dos séculos XVI e XVII até à actualidade, se encontra hoje em dia razoavelmente bem documentada, a pré-história dos museus universitários, pelo contrário, está ainda por fazer. Porém, trata-se de uma tarefa muito importante dado que enquanto a singularidade histórica dos museus e das colecções universitárias permanecer desconhecida, a sua relevância científica e social permanecerá sub-valorizada, a sua identidade continuará em crise e o seu património não deixará de estar em risco. Este artigo pretende ser uma modesta contribuição para essa tarefa, propondo cinco marcos históricos para a evolução dos museus e das colecções universitárias: a colecção de ensino, o museu de ensino, a colecção de estudo, a colecção de investigação e o museu universitário. No final, são tecidas algumas considerações gerais no que diz respeito ao século XX.

Abstract

The recent history of museums, from the sixteenth and seventeenth century *wunderkammer* to the present, is relatively well-documented. In marked contrast, the pre-history of university museums remains largely unstudied. This is an important task: if the origin and singularity of university museums and collections remain unknown, their scientific and social roles will remain undervalued, their identity will remain in crisis and their heritage will be at risk. This paper aims to contribute to the knowledge of that history. Five historical landmarks that shaped the diversity and complexity of contemporary university museums and collections – the teaching collection, the teaching museum, the study collection, the research collection and the university museum – will be outlined, followed by some notes on developments during the twentieth century.

Introduction

The Ashmolean Museum is generally regarded as the first museum of a modern character – it was a university museum and opened to the public in 1683. The Ashmolean included a school of natural history with lecture and demonstration rooms, a chemistry laboratory and an exhibition room (BENNETT 1997, MACGREGOR 2001). The Ashmolean model was eventually followed by thousands of university museums all over the world (BOYLAN 1999). From Stockholm to San Francisco, no matter how small and specialised, university museums were equipped with class and study rooms, offices for teachers, demonstration rooms and theatres,

display areas, and a library, under the direction of a single professor. However, collections existed before museums did. Records of groupings of objects supporting teaching go back to at least 2000 BC, with archives being even more ancient. One of the most striking discoveries of an early 'teaching collection' was made in the early twentieth century by the archaeologist Sir Leonard Woolley at Ur in present day Iraq. Woolley discovered a school dating from 530 BC that contained a room with several antiquities pre-dating the school by up to 1,600 years. If not already fascinating enough in itself, what appears to have been a 'museum' label was found accompanying these antiquities (WOOLEY & MOOREY 1982).

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In universities, the history of teaching and research collections is at least as important as the history of museums. When the Ashmolean opened to the public, a few collections were already on public display at some European universities. In 1617, the collections of Ulisse Aldrovandi and Ferdinando Cospì were displayed in the *Palazzo Pubblico* in Bologna (LAURENCICH-MINELLI 2001). In 1662, the city of Basel bought Basilius Amerbach's cabinet of curiosities and donated it to the university library – public access was granted in 1671, more than 10 years before the Ashmolean opened its doors (LEWIS 1984, ACKERMAN 2001).

In this paper, I will give as much attention to the history of university collections as to the history of university museums. This implies that a line will need to be drawn between a 'museum' and a 'collection', a distinction that is not always easy to make. In universities, in particular, we find collections *in* museums but also *outside* museums, especially those used for teaching and research. For the current purpose, the problem will be solved pragmatically. The word *museum* will be used as defined by ICOM, implying that the first university museum was the Ashmolean. The word *collection* will be used in the sense of a logically coherent system of documented material evidence, permanently or temporarily gathered in the framework of a clear and previously established purpose. If this purpose is research, then I shall call them *research collections*; if it is teaching, then I shall call them *teaching collections*.

This paper aims at briefly presenting the origins and evolution of five historical landmarks that shaped the diversity and complexity of contemporary university museums and collections: a) the teaching collection, b) the teaching museum, c) the study collection, d)

the research collection, and e) the university museum. Libraries, archives or other collections gathered by universities outside their research and teaching missions will not be considered.

The teaching collection

The teaching collection is a long survivor – it is the Methuselah of university collections. However, where and when the teaching collection first appeared is not at all clear. Some authors hold that there were hardly any collections in medieval Europe apart from the royal treasuries and Church collections (e.g. LEWIS 1984, BELK 1995). In the specific case of medieval universities, there are records of archives, commemorative objects, portraits, sacred art, manuscripts, and in due course, printed books (GIEYSZTOR 1996).

The scholastic atmosphere and the theoretical nature of medieval teaching did not stimulate collections. Direct observation and experimentation were not characteristic of this period. People in the Middle Ages venerated the rare, the unusual, the wonderful and the miraculous. Natural history was, for a large part, dominated by unicorns and mermaids, seemingly mostly due to the second to fifth centuries writings of anonymous authors collectively known as Physiologus (RITTERBUSH 1969, WHITEHEAD 1970). Moreover, notions of 'research' and 'scientific progress' were unknown in medieval universities (VERGER 1996). Engagement of the university in the advancement of knowledge would only come with the Enlightenment and the establishment of nation states (RUDY 1984)¹. In addition, pedagogy was quite different from what it is now. In early universities², a typical class would begin with the reading of officially sanctioned texts, followed by

¹ Professors, however, were required to achieve some progress, meaning that their formulations should get closer and closer to 'the truth' (VERGER 1996), but this progress was seen as obtainable only through the study and interpretation of the Greek, Roman and Arab manuscripts. By the end of the twelfth century, the majority of Aristotle's works had been translated into Latin and were studied in most universities (WHITEHEAD 1970, LEFF 1996, RÜEGG 1996a). Albert Magnus (1206-1280) and his pupil Thomas Aquinas (1225-1274), for example, were two important interpreters of Aristotle's texts. In 1256, Albert Magnus wrote an influential book on botany: *De vegetabilibus et plantis libri* (RÜEGG 1996a).

² Because of varying criteria, it is difficult to establish a precise date for the creation of universities. That of Bologna is widely considered to be the first university in Europe. Although the year of 1088 is not fully documented, it is generally accepted as the date of its foundation (RÜEGG 1996a). Bologna served as a model for all southern European universities (VERGER 1996). The University of Paris was created between 1150 and 1170, although official recognition only came in 1211 (VERGER 1996). The first title of Chancellor was conferred at the University of Oxford in 1214.

comments by the teacher – this was called the *lectio*, meant to accustom students with the 'authorities'. The *lectio* was followed by the *disputatio*, an oral debate wherein specific cases were discussed and constant reference to the authorities was required, either to establish, sustain or refute a given thesis (VERGER 1973). The *lectio-disputatio* model was universal in early universities³. Within this framework, there was little need for collections (BOYLAN 1999).

However, when we become aware of the subjects taught in medieval universities, we may well become suspicious about the alleged absence of collections. Universities were organised according to the classical model of the four faculties: Arts, Theology, Law and Medicine. There were seven Arts, grouped under the *trivium* and the *quadrivium*. The *trivium* included Grammar, Rhetoric and Logic, and the *quadrivium* comprised Music, Arithmetic, Geometry and Astronomy. Could there have been recourse to types of 'collections', at least in the teaching of medicine and the *quadrivium*?

Some sources in the history of teaching actually confirm grounds for this suspicion. Although the term 'collection' is indeed absent⁴, there is evidence of objects being used in teaching during the late Middle Ages. During the first half of the fourteenth century the calculators of Merton College (Oxford) were pioneers in the application of mathematical laws to the study of motion, and they also measured the physical properties of bodies (LEFF 1996). The same may be said of Nicole (d') Oresme in Paris in 1350, and of Jean Buridan and Albert de Saxe before him (LEFF 1996). It has been argued that "the Oxford

calculators and the Parisian logicians created mathematical and mechanical instruments" (LEFF 1996: 329), and if this was indeed the case, such instruments were most likely used for teaching. Both in physics and the *quadrivium*, musical, optical and astronomical instruments were developed that served "both practical purposes and research [sic]" (RÜEGG 1996a: 27). Instruments like the quadrant, early models of astrolabes, solar clocks and the *equatorium* (for the study of Euclidean Astronomy) were used for teaching. The University of Krakow provides an early example, with an independent Astronomy course being given there as early as 1349 (NORTH 1996).

As for Medicine⁵, "practical demonstrations existed ever since the first medical schools in Salerno [Italy]" (SIRAISSI 1996: 366). Public dissections started in Bologna as early as 1316 and in Montpellier dissections were statutorily established in 1340 (SIRAISSI 1996). Anatomy and pathology were taught in Paris from 1267 onwards, and at the same time, although official dissections were not frequent, teachers regularly performed them in private for their students (CLIN 1994). The objectives of dissections were more related to the teaching of human anatomy rather than to mastering dissecting techniques, supposedly the task of surgeons⁶, and bones were therefore likely to be preserved for future use. Moreover, although the first confirmed record of a *hortus medicus* in a university dates from the 1450s, these probably existed earlier in a more or less rudimentary form: a) in Europe, herbs had been cultivated for medical purposes at least since the ninth century⁷, b) the Arab treatises used in medieval

³ Universities systematically opposed other forms of intellectual expression. Both the mystical exegesis used in monastic culture and the more innovative methods of experimentation, measurement, and historical analysis were not permitted. Only with the onset of the humanist movement in the late fifteenth and early sixteenth centuries, the latter were gradually introduced (VERGER 1996). For more information on the impact of humanism on universities, see RÜEGG (1996b).

⁴ The initial use of the term 'collection' in the English language is unclear. According to the Merriam Webster Dictionary, it was first used in the fourteenth century. However, the Oxford Dictionary states that the term 'collection' originated in 1460 in relation to books and archives and was only used in relation to natural history specimens and works of art for the first time in 1651.

⁵ For an overview of the study and practice of medicine in medieval universities, see e.g. SIRAISSI (1996) and CLIN (1994).

⁶ Because medical and surgical collections often evolved separately, it is historically relevant to distinguish between physicians and surgeons. In fact, physicians were taught in universities and had book-oriented training – physicians were scholars. In marked contrast, surgeons were considered craftsmen, like barbers, and received only practical training (CLIN 1994). Only in the fifteenth and sixteenth centuries did surgeons begin to receive university training.

⁷ The first documented record is from the Monastery of Saint-Gall, Switzerland, in the ninth century (PAIVA 1981). It is unknown what early monastic gardens really looked like, but the plan of Saint Gall survives and shows orchards, fish ponds, grape arbours, herbs and vegetables for food and medicine, and decorative flowers for the altar. For further information on the history of botanical gardens, see INGWERSEN (1978) and MORTON (1981).

university teaching explicitly considered botanical pharmacology as an independent area of treatment (SIRAISI 1996), and c) medical students had to read and study Aristotle's *libri naturales*.

It thus becomes clear that objects were indeed used in medieval universities to facilitate ideas. These objects were probably used repeatedly, individually or in groupings – however, in-depth analyses of primary sources would be necessary to bring to light the details. In the Renaissance university – more open to pedagogical innovation than its medieval forerunners (VERGER 1996) – models, maquettes, casts, and reproductions, but also real objects like specimens and instruments, were assembled and used to illustrate, demonstrate and explain (CLERCQ & LOURENÇO in press); meanwhile such teaching collections are still extensively used in universities today.

The *hortus medicus* and the *theatrum anatomicum*:
paving the way for the teaching museum

Renaissance cabinets of curiosities and private collections have been studied in detail (e.g. BELK 1995, IMPEY & MACGREGOR 2001, ALEXANDER 1979) and will not be further addressed here. However, two remarks must be made in this connection. Firstly, it should be noted that many private *wunderkammer*, despite their symbolic and mannerist arrangements, were considered important by university teachers and scholars, who regularly visited and studied them (AIMI *et al.* 2001). Moreover, many *wunderkammer* ended up in universities⁸. Secondly, we must account for the social conditions that triggered the development of Renaissance private collecting, such as the

discoveries of foreign lands, European population growth following the plague, new inventions such as the clock and the printing press, and the rise of the bourgeoisie as a driving power in civil society (BELK 1995). Together with the humanist movement and the Reformation⁹, these conditions had a profound influence on university teaching.

During the Renaissance, three important innovations should be considered in connection with the history of university collections: the botanical garden, the anatomical theatre (and teaching museum), and the advent of the study collection.

As expected from the history of medieval universities, the first organised collections were undoubtedly related to the teaching of medicine, viz. the physic garden (*hortus medicus* or *hortus simplicium*) and the anatomical theatre (*theatrum anatomicum*) (SCHUPBACH 2001, OLM 2001). The first garden was established either in Padua or Pisa in the 1540s and the first anatomical theatre in Padua in 1594. From Italy, they quickly spread to other European universities, always with medical teaching or practice at the roots of their foundation¹⁰. Physic gardens and anatomical theatres are relevant to the history of university museums and collections for two important reasons: firstly, because several types of collections and the development of early preservation techniques originated in their context, and secondly, because they represent the first organised attempt to congregate objects in a permanent location for a specific audience.

In gardens, plants were dried and mixed for medical purposes, thereby giving birth to *herbaria* and to the

⁸ Examples of important private collections that were eventually incorporated in European universities are the zoological and geological material of the Cabinet of King Frederik II of Denmark (1609-1670), which formed the basis for the Zoology and Mineralogy Museums of the University of Copenhagen, established in 1862 and 1870 respectively (GUNDESTRUP 2001); the nineteenth century sculpture cast collection of the University of Prague, which has its origins in the private cabinet of Count Nostitz (DUFKOVÁ 1988); and the cabinet of antiquities and natural history of Sir Andrew Balfour (1630-94), which went to the University of Edinburgh in 1697 (MACGREGOR 2001).

⁹ For further information on Renaissance and early modern universities, see H. DE RIDDER-SYMOENS (ed.) 1996. *A History of the University in Europe: Vol II – Universities in Early Modern Europe (1500-1800)*. Cambridge University Press.

¹⁰ The creation of the Amsterdam Botanical Garden is both typical and interesting. In 1635, Amsterdam was severely struck by an epidemic of plague, so severe that almost half of the population died. Merchants, apothecaries, pseudo-medical doctors and 'real' doctors were selling all sorts of remedies. Therefore, in 1636 the city council of Amsterdam established a training and certification programme for physicians, forcing them to pass an examination (the *keur*). The *hortus medicus* was founded to support the training and placed under the supervision of a group of physicians from the *Athenaeum Illustre* (the predecessor of the University of Amsterdam). In 1638 the first director was appointed (B. URSEM, *pers. comm.*).

first pharmaceutical collections – the *materia medica*. Perhaps somewhat unexpectedly, geological specimens were also collected, as these were considered to have healing power as well as symbolic meaning (TORRENS 2001). Late sixteenth- and early seventeenth-century *materia medica* teaching collections at the Universities of Cambridge, Oxford, and Leiden, among others, included a large proportion of minerals and fossils (TORRENS 2001). The first records of wax models also appear in the sixteenth century, displayed alongside osteological material in anatomical theatres (SCHUPBACH 2001, OLM 2001). Some of these early botanical gardens still survive today, but most anatomical theatres were destroyed or adapted for other use.

The teaching museum

Needless to say that these botanical and *materia medica* teaching collections required special locations in order to be easily accessed by both students and scholars. Therefore, it was probably in the neighbourhood of botanical gardens and anatomical theatres that exhibitions were mounted in universities for the first time. Although we cannot, of course, speak of museums in the modern ICOM sense (POULOT 2001), exhibitions of teaching collections became known as ‘teaching museums’, an expression still in use today. In fact, the use of the term ‘museum’ in this context is not completely void, since the exhibitions were permanent and occasionally visited by a more general public. Therefore, it is fair to say that teaching museums have existed since the 1600s and these were clear predecessors of the Ashmolean. The first record of a teaching museum, built in the 1590s, comes from Pisa’s Botanical Garden (ALEXANDER 1979). A similar one was built in Leiden in 1600. Anatomical teaching museums – located near anatomical theatres – appeared later and the first was probably constructed in Leiden in 1597 (ROOSEBOOM 1958)¹¹.

The display of teaching collections was practical for obvious reasons and the teaching museum later

spread to other fields – for example, the arts. The seventeenth century marks the beginning of the golden age of the schools of ‘beaux-arts’. Painting, sculpture, and architecture were learnt by direct observation of famous artists. During this period, plaster casts became objects of study in both sculpture and architecture (MOSSIÈRE 1996). Similar to their anatomical and botanical counterparts, the art teaching academies presented originals, reproductions, *maquettes*, and pedagogical models.

Teaching museums were also created near chemical laboratories, astronomical observatories, and physics cabinets, particularly after the higher education reforms of the nineteenth century. Many established regular opening hours and facilitated public access, thereby becoming museums in the current sense of the term. However, even after they ‘went public’, many teaching museums maintained their didactic character and therefore attracted only specialised audiences. On occasions, teaching museums were absorbed by existing (university) museums. With the onset of the Enlightenment, the complexity of museums and collections increased, and it became more and more difficult to distinguish between the two.

The study collection

Around the sixteenth century, another landmark makes its appearance: the study collection. Just as the teaching museum is perhaps the embryo of the university museum, the study collection is the embryo of the research collection. Study collections prospered in sixteenth- to eighteenth-century Europe, and belonged mainly to learned societies and academies, merchants, the nobility, and the well-to-do bourgeoisie. The type of study collections of most interest to us here, however, are those closely associated with the university, i.e. gathered by university professors as a result of their own personal and professional interests, and simultaneously used for study and teaching. The first of these was probably assembled by Ulisse Aldrovandi (1527–1605),

¹¹ The teaching museum model was adopted outside universities. For example, in the 1650s and 1660s, societies of surgeons in Rotterdam and Delft, the Netherlands, were among the first to construct anatomical theatres where curiosities were displayed (SCHUPBACH 2001).

professor *de fossilibus, plantis et animalibus* at the University of Bologna (OLMI 2001).

What was so special about these collections and what is it that makes them embryos of modern research collections? Study collections probably represent the first attempt to study and document objects in an organised manner through direct observation and experiment, supported by an increasingly 'natural' classification (RITTERBUSH 1969, WHITEHEAD 1970). Contrary to the *wunderkammer*, where reality was symbolically reconstructed, the study collection was seen as an instrument for the exploration, documentation and comprehension of the world (WHITEHEAD 1970, OLMI 2001, LAURENCICH-MINELLI 2001). In Aldrovandi's collection, for example, works of art were separated from natural objects (RITTERBUSH 1969), while common objects – such as local animals and plants – were also represented (OLMI 2001). However, most authors consider that these did not yet represent 'real' research collections. Mannerism and symmetry in display were still the prevailing organisational criteria (OLMI 2001) and most of the different classification systems¹² were based on emphasising the living animal and its often amazing behaviour – a tradition that dates back to Pliny and Physiologus (GEORGE 2001, OLMI 2001). Research collections, in order to become just that, would have to transcend symbolism, and in the case of natural history specimens, this meant an acceptance of the basic assumption that these represented reality as such (RITTERBUSH 1969).

Nevertheless, the importance of study collections should not be underestimated. Scholarly collecting continued well into the seventeenth and eighteenth centuries – for example, with Olaus Worm (1588–1654) at the University of Copenhagen, Frederik Ruysch (1638–1731) at the *Atheneum Illustre* (predecessor of the University of Amsterdam), Johann Heinrich Schulze (1687–1744) at the University of Halle-Wittenberg, as well as many others.

The presence of antiquities and natural history specimens in study collections paved the way for the first coherent classification system by Linnaeus in the mid-eighteenth century, for the first zoogeographical insights of Buffon in the 1760s, for the first evolutionary theory by Lamarck in 1809, and for the first archaeological classification by Thomsen in 1836. In due time, the majority of these collections would become research collections and would be integrated into museums.

The invention of the university museum: the Ashmolean

The university museum in its modern form is an invention of seventeenth-century Europe. The Ashmolean has been the object of in-depth studies (e.g. BENNETT 1997, MACGREGOR 2001) and I will highlight only two aspects: a) the differences between the Ashmolean and the former teaching museum, and b) the Ashmolean's organisational structure. The Ashmolean brought two innovations to the teaching museum. First, of all and from the very beginning, a broader audience outside the university community was sought for the first time. Secondly, the teaching museum was merely a location where teaching collections were displayed; it had no structure, no specifically appointed staff – in short, no institutional existence. The Ashmolean was the first institutionalized museum as we know it today.

However, although the Ashmolean indeed marked a new era, it did not exactly trigger a revolution in the university. The fundamental objective of the Ashmolean was still the same as earlier collections and undoubtedly of libraries and archives as well: in essence it was an *instrument* to support teaching and was meant to play an active role in explaining, describing, and archiving nature. There is a subtle and continuous line that can be traced back from the Ashmolean to teaching and study collections and, in a way, all the way to the *Museion* in Alexandria. With

¹² Conrad Gesner developed his own groupings, and Aldrovandi had also developed his own classification system (RUDWICK 1985, RAY 2001), as did John Ray and Francis Willughby (RAY 2001). John Tradescant adopted the system developed by the German Georgius Agricola (1494–1555) in 1546, at least in his mineral collection (RUDWICK 1985, TORRENS 2001).

the Ashmolean, the ancient objectives are simply achieved in an integrated manner, and with increased access. Clearly, the concern of the Ashmolean's architect and early curators was to have everything under the same roof and easily accessible: teaching, research, display, and their users (students, professors, and public alike). The rest of the story is well known: the Ashmolean model was imitated by universities throughout the world (BOYLAN 1999), also in what might at first seem to be unexpected disciplines. The Conservatoire des Arts et Métiers, established in Paris in 1794, similarly followed this organisational pattern, and both students and the general public were invited to attend classes and demonstrations, visit the exhibitions rooms, or use the library. In 1889, the Musée Huguier at the École des Beaux-Arts in Paris included several display areas, a library and an archive, and a subsidiary anatomical museum and laboratory where human bones and articulations were prepared for teaching (JACQUES 2001)¹³.

The Research Collection

It is impossible to say when and where the first research collection appeared¹⁴. The dividing line between study collections and research collections is often difficult, if not impossible, to draw. As late as the eighteenth century, the Anatomy Museum at Oxford University included in its collection: "a Moor's ear cut off; a frightful large Indian Bat; the Hand of a supposed Siren, dried; a Mermaid's hand; the teat of a witch; the skeleton and stuffed skin of a woman who had eighteen husbands" (WHITEHEAD 1970: 51). Such objects are hardly typical of what we would call a research collection, and they are emblematic of the complexity of collections in the eighteenth century. In spite of the diversity of study collections, research collections developed only in disciplines that require

objects in order to produce new knowledge - or, to use the expression of RUDWICK (1976), in disciplines that share an interaction between theory-building and the accumulation of ever-richer stores of evidence. Research collections therefore flourished in zoology, palaeontology, botany, mineralogy and geology, archaeology, anthropology and ethnography, and medicine.

The history of these disciplines is well-documented and I will not address it here¹⁵. Undoubtedly, the continuous use of study collections, the works of Bacon, Buffon, Cuvier, Lyell, Darwin, Haeckel, and others, together with the development of preservation techniques, the development of scientific illustration and the great expeditions, had a major impact on the specialisation of natural history (WHITEHEAD 1970, FARBER 1997). Moreover, the work of Linnaeus gave rise to the first standardised and widely accepted nomenclatural system for both botany and zoology¹⁶. Research collections in archaeology were developed after 1836, when C.J. Thomsen introduced the three-age period (Stone, Bronze and Iron), Jens Worsaae divided the Stone Age into Palaeolithic, Mesolithic and Neolithic, and regional variation within these periods was recognised¹⁷. These workers, together with Darwin's and Lyell's new insights in the fields of biology and geology, unveiled a new view of human origins to the Christian world (GREENE 1995). Anthropological research collections appeared only after those in natural history.

From the study to the research collection, the object acquired an increasingly important documentary value - it was collected to answer a particular question or to archive the answer (CLERCQ & LOURENÇO in press). The representative role of objects in collections was to a considerable extent adopted and adapted by archaeology and anthropology (GREENE 1995, BOYLAN

¹³ To emphasize the integrated nature of their mission, some university museums in the late nineteenth centuries and early twentieth century (after the establishment of research collections) adopted the designation 'museum-laboratory' (e.g. Museum-Laboratory of Mineralogy and Geology of the University of Lisbon). I think it is not by chance that in the 1970s Georges-Henri Rivière employed the expression museum-laboratory. Rivière was an academic and the *Museon* inspiration can be guessed from his museum definition.

¹⁴ See BENSON (1988) and KOHLSTEDT (1988) for information on the early development of biology in the United States.

¹⁵ See e.g. PARR (1959), ZUSI (1969), RUDWICK (1976), WATSON *et al.* (1971), GREENE (1995), FARBER (1997).

¹⁶ For a comprehensive historical account of nomenclatural systems, particularly in Zoology, see MELVILLE (1995).

¹⁷ We cannot speak of archaeology before the nineteenth century, but rather of "an amorphous antiquarianism" (S. PIGGOTT quoted in GREENE 1995: 8).

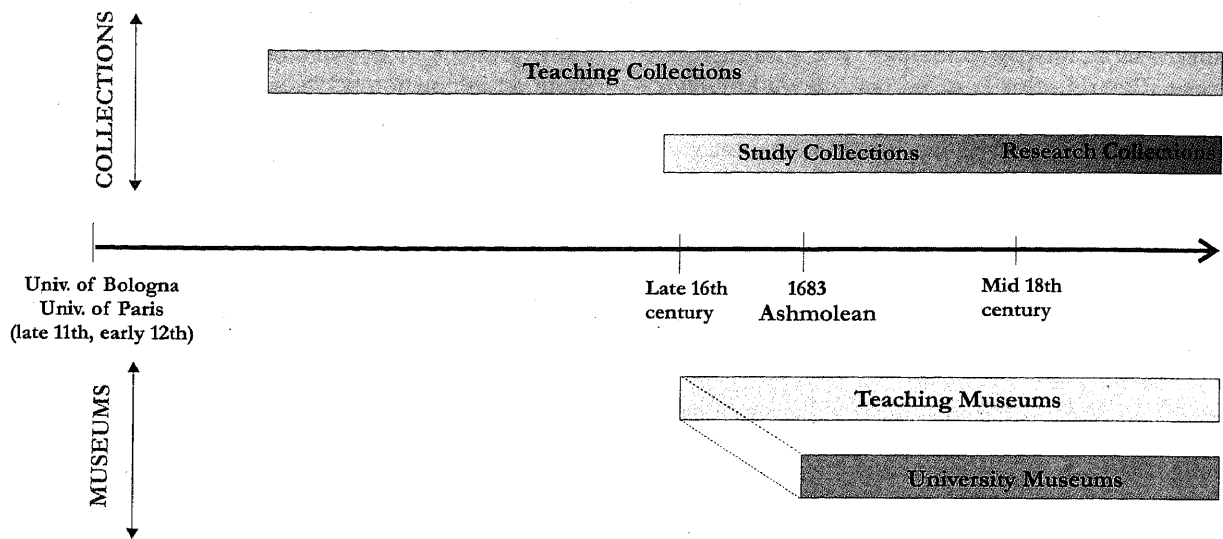


Fig. 1

1999), and even by other disciplines (e.g. art collections representing particular styles or periods).

Conclusions

Teaching collections were born with the first universities and, in essence, remained remarkably constant until today. Research collections originated in the mid- to late- eighteenth century, with late-sixteenth century study collections as their precursors. University museums began with the Ashmolean in 1683. Summarized like this, the story sounds simple, but it is not.

When we reach the nineteenth century, the complexity of the museological panorama in universities stretches before our eyes (Fig. 1), with teaching collections, research collections and museums coexisting and persisting till the present day. As mentioned above, the borders between these entities were – and still are – far from clear. Teaching and research collections have developed inside and

outside museums. Frequently, objects switched from research to teaching collections, and from collections to museums. Moreover, after hundreds of years of existence, research and teaching collections have acquired different and new meanings and values.

During the twentieth century, universities gradually came to realize that they had accumulated objects, buildings and teaching equipment of high historical value. The acknowledgment of this heritage, together with the accumulation of donated art and social and academic factors, determined the birth of important different types of museums. Now concentrating more on ‘narrative’ displays of historically significant objects, these new museums¹⁸ are perhaps less focused upon teaching and research, but more preoccupied by informing and attracting broader segments of the general public.

Today, universities present the greatest – and probably the oldest – diversity of museological institutions in contemporary society. Contrary to general museums

¹⁸ For example, the museum of science (e.g. universities of Oxford, Cambridge, Leiden, Lisbon), the museum devoted to the history of the university and student life (e.g. universities of Utrecht, Groningen, Bologna, Halle-Wittenberg, Coimbra), and the art museum (e.g. universities of St. Andrews, Porto).

and their ancestors (the cabinets of curiosities) the pre-history of university museums and collections remains largely unstudied. The task is huge, combining as it does the history of universities with the history of collections, and the history of the disciplines represented in the collections. As long as their history

and singularity remain unstudied, the scientific and social roles of university museums and collections will remain undervalued, their identity will remain in crisis, and their heritage will be at risk. The history of university collections and museums is therefore an urgent and much needed endeavour.

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References

- ACKERMANN, H.C. 2001. The Basle Cabinets of Art and Curiosities in the sixteenth and seventeenth centuries. In: O. IMPEY & A. MACGREGOR (eds.), *The Origins of Museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe*, pp. 81-90. 2nd edition. House of Stratus, London.
- AIMI, A., V. DE MICHELE & A. MORANDOTTI 2001. Towards a history of collecting in Milan in the Late Renaissance and Baroque periods. In: O. IMPEY & A. MACGREGOR (eds.), *The Origins of Museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe*, 2nd edition, pp. 29-35. House of Stratus, London.
- ALEXANDER, E.P. 1979. *Museums in Motion*. American Association for State and Local History, Nashville.
- BENNETT, J.A. 1997. Le Musée d'histoire des sciences d'Oxford. *La Revue [CNAM]* 21 (Décembre): 30-38.
- BENSON, K.R. 1988. From museum research to laboratory research: The transformation of natural history into Academic Biology. In: R. RAINGER, K.R. BENSON & J. MAIENSCHIN (eds.), *The American development of Biology*, 49-83. Rutgers University Press, New Brunswick.
- BELK, R.W. 1995. *Collecting in a consumer society*. Routledge, London.
- BOYLAN, P.J. 1999. Universities and museums: past, present and future. *Museum management and curatorship* 18: 43-56.
- CLERCQ, S.W. DE & M.C LOURENÇO in press. A globe is just another tool: understanding the role of objects in university collections. *ICOM Study Series*.
- CLIN, M.V. 1994. *Le Musée d'Histoire de la Médecine de Paris*. Musée d'Histoire de la Médecine, Paris.
- DUFKOVÁ, M. 1988. Le musée de moulages de sculptures grecques et romaines à Hostinné, Tchécoslavie. In: *Le Moulage: Actes du Colloque International 10-12 avril 1987*, pp. 173-179. La Documentation Française, Paris.
- FARBER, P.L. 1997. *Discovering birds: the emergence of ornithology as a scientific discipline, 1760-1850*. John Hopkins University Press, Baltimore.
- GEORGE, W. 2001. Alive or Dead: Zoological collections in the seventeenth century. In: O. IMPEY & A. MACGREGOR (eds.), *The Origins of Museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe*, 2nd edition, pp. 245-255. House of Stratus, London.
- GIEYSZTOR, A. 1996. Gestão e Recursos. In: H. DE RIDDER-SYMOENS (ed.), *Uma história da universidade na Europa. Vol. 1 - As universidades na Idade Média*, pp. 107-141. Imprensa Nacional-Casa da Moeda, Lisbon.
- GREENE, K. 1995. *Archaeology. An Introduction*. 3rd edition. Routledge, London.
- GUNDESTRUP, B. 2001. From the Royal Kunstkammer to the Modern Museums of Copenhagen. In: O. IMPEY & A. MACGREGOR (eds.), *The Origins of Museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe*, 2nd edition, pp. 177-187. House of Stratus, London.
- IMPEY, O. & A. MACGREGOR (eds.) 2001. *The Origins of Museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe*, 2nd edition. House of Stratus, London.

- INGWERSEN, I. 1978. The making of a botanical garden. *The Garden* **103** (3): 93.
- JACQUES, A. (ed.) 2001. *Les Beaux-Arts, de l'Académie aux Quat'z'arts*. Ecole Nationale Supérieure des Beaux-Arts, Paris.
- KOHLSTEDT, S.G. 1988. Museums on campus: A tradition of inquiry and teaching. In: R. RAINGER, K.R. BENSON & J. MAIENSCHIN (eds.), *The American development of Biology*, pp. 15-47. Rutgers University Press, New Brunswick.
- LAURENCICH-MINELLI, L. 2001. Museography and ethnographic collections in Bologna during the sixteenth and seventeenth centuries. In: O. IMPEY & A. MACGREGOR (eds.), *The Origins of Museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe*, pp. 19-27. 2nd edition. House of Stratus, London.
- LEFF, G. 1996. O Trivium e as três filosofias. In: H. DE RIDDER-SYMOENS (ed.) *Uma história da universidade na Europa. Vol. 1 – As universidades na Idade Média*, pp. 307-336. Imprensa Nacional-Casa da Moeda, Lisbon.
- LEWIS, G.D. 1984. Collections, collectors and museums: a brief world survey. In: J.M.A. THOMPSON (ed.), *Manual of Curatorship*, pp. 7-22. Butterworths/MA, London.
- MACGREGOR, A. 2001. The Ashmolean as a museum of natural history, 1683-1860. *Journal of the History of Collections* **13**: 125-144.
- MELVILLE, R.V. 1995. *Towards stability in the names of animals. A history of the International Commission on Zoological Nomenclature 1895-1995*. International Commission on Zoological Nomenclature, London.
- MORTON, A.G. 1981. *History of botanical science. An account of the development of Botany from ancient times to the present day*. Academic Press, London.
- MOSSIÈRE, J.-C. 1996. Les musées des moulages. *La Lettre de l'OCIM*, **44**: 10-13.
- NORTH, J. 1996. O Quadrivium. In: H. DE RIDDER-SYMOENS (ed.), *Uma história da universidade na Europa. Vol. 1 – As universidades na Idade Média*, pp. 337-360. Imprensa Nacional-Casa da Moeda, Lisbon.
- OLMI, G. 2001. Science-Honour-Metaphor: Italian cabinets of the sixteenth and seventeenth centuries. In: O. IMPEY & A. MACGREGOR (eds.), *The Origins of Museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe*, pp. 1-17. 2nd edition. House of Stratus, London.
- PAIVA, J.A.R. 1981. Jardins botânicos: sua origem e importância. *Munda* **2**: 35-43.
- PARR, A.E. 1959. *Mostly about museums*. American Museum of Natural History, New York.
- POULOT, D. 2001. *Patrimoine et musées: l'institution de la culture*. Hachette, Paris.
- RITTERBUSH, P.C. 1969. Art and science as influences on the early development of natural history collections. *Proceedings of the Biological Society of Washington* **84**: 559-762.
- ROSEBOOM, M. 1958. The history of science and the Dutch collections. *Museums Journal* **58**: 199-208.
- RUDY, W. 1984. *The Universities of Europe, 1100-1914*. Fairleigh Dickinson University Press, London.
- RUDWICK, M.J.S. 1976. *The meaning of fossils. Episodes in the history of palaeontology*. University of Chicago Press, Chicago.
- RÜEGG, W. 1996a. Temas. In: H. DE RIDDER-SYMOENS (ed.), *Uma história da universidade na Europa. Vol. 1 – As universidades na Idade Média*, pp. 3-31. Imprensa Nacional-Casa da Moeda, Lisbon.
- RÜEGG, W. 1996b. O alvorecer do Humanismo. In: H. DE RIDDER-SYMOENS (ed.), *Uma história da universidade na Europa. Vol. 1 – As universidades na Idade Média*, pp. 445-470. Imprensa Nacional-Casa da Moeda, Lisbon.
- SCHUPBACH, W. 2001. Some Cabinets of Curiosities in European Academic Institutions. In: O. IMPEY & A. MACGREGOR (eds.), *The Origins of Museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe*, pp. 231-243. 2nd edition. House of Stratus, London.
- SIRAI, N. 1996. A Faculdade de Medicina. In: H. DE RIDDER-SYMOENS (ed.) *Uma história da universidade na Europa. Vol. 1 – As universidades na Idade Média*, pp. 361-88. Imprensa Nacional-Casa da Moeda, Lisbon.
- TORRENS, H. 2001. Early collecting in the field of Geology. In: O. IMPEY & A. MACGREGOR (eds.), *The Origins of Museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe*, pp. 281-293. 2nd edition. House of Stratus, London.
- VERGER, J. 1973. *Les universités au Moyen Age*. Quadrige/Presses Universitaires de France, Paris.
- VERGER, J. 1996. Modelos. In: H. DE RIDDER-SYMOENS (ed.), *Uma história da universidade na Europa. Vol. 1 – As universidades na Idade Média*, pp. 33-71. Imprensa Nacional-Casa da Moeda, Lisbon.
- WATSON, P.J., S.A. LEBLANC & C.L. REDMAN 1971. *Explanation in Archaeology: an Explicitly Scientific Approach*. Columbia University Press, New York.
- WHITEHEAD, P.J.P. 1970. Museums in the history of zoology. *Museums Journal* **70**: 50-57.
- WOOLLEY, L. & P.R.S. MOOREY 1982. *Ur 'of the Chaldees'*. Cornell University Press, Ithaca.
- ZUSI, R.L. 1969. The role of museum collections in ornithological research. *Proceedings of the Biological Society of Washington* **82**: 651-661.